

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A system for accessing and transmitting different data frames in a digital transmission network, the system comprises:

at least one user-network interface (UNI), coupled with a subscriber's network; ~~[[and/or]]~~  
~~and~~ at least a network-network interface (NNI), coupled with the digital transmission network to transfer data; and

a data converting device, coupled with the UNIs and the NNIs, configured to convert data formats between the UNIs or data formats between the NNIs or data formats between the UNIs and the NNIs;

the data converting device comprises a virtual bridge device and a virtual interface device, the virtual interface device coupled to the ~~[[UNI]]~~ UNIs and the ~~[[NNI]]~~ NNIs, the virtual bridge device comprises:

an inter-device interface, configured to input and output the data frames;

a virtual bridge processing unit, coupled with the inter-device interface ~~to process data for~~  
processing of the data frames;

a database, coupled with the virtual bridge processing unit ~~for data processing~~ and configured to store information indicative of data types to ~~facilitates~~ facilitate the processing of  
the data frames of the virtual bridge processing data processing according to the data types; and

a control interface unit, coupled with the database, the database being controlled via the control interface unit and the virtual bridge processing unit so as to control the database and the virtual bridge processing unit, wherein

the virtual bridge device switches data between the UNIs and/or the NNIs,

determines the virtual bridge device is configured to determine whether the data frames entering the virtual bridge device are control messages, [[and]]

transmits transmit the control messages to an external control system for processing via the control interface unit if the data frames entering the virtual bridge device are control messages [[and]] ,

extract an input data type number, a destination address and a virtual Local Area Network (VLAN) number from the data frames switches data frames if the data frames entering the virtual bridge device are not control messages,

search in the database according to the input data type number and determine whether the retrieval result from the searching is blank, discard the data frames and end the process if the retrieval result is blank and extract a virtual bridge number and a port number from the retrieval result if the retrieval result is not blank,

determine the processing flow according to the destination address, perform a multicasting sub-flow, and then end the process if the destination address is a multicasting address; perform a broadcasting sub-flow, and then end the process if the destination address is a broadcasting address,

search in the database according to the virtual bridge number, the port number, the destination address and the VLAN number if the destination address is neither a multicasting address nor a broadcasting address, perform the broadcasting sub-flow or discard the data frames

and end the process if the retrieval result is blank, and extract an output port number from the retrieval result, modify the data frame so as to replace the input data type number in the data frames with the output data type number, send the modified data frames via the inter-device interface, and then end the process if the retrieval result is not blank.

2. (Previously Presented) A system for accessing and transmitting different data frames in a digital transmission network according to claim 1, wherein the data converting device comprises a data processing and dispatching device, the inter-device interface connects with the data processing and dispatching device.

3. (Currently Amended) A system for accessing and transmitting different data frames in a digital transmission network according to claim 1, wherein the database comprises a virtual bridge database, a multicasting database and a forwarding database; the multicasting database and the forwarding database store the virtual bridge number, virtual bridge an input port number, the destination address [[input]], the Virtual Local Area Network (VLAN) number [[input]], a virtual Metropolitan Area Network (VMAN) number input-virtual-bridge, the output port number; the virtual bridge database stores the input data type number [[input]], the virtual bridge number, the port number, the output data type number output.

4. (Previously Presented) A system for accessing and transmitting different data frames in a digital transmission network according to claim 1, wherein the control interface unit provides an external control interface and adds, deletes, modifies and searches in the database via the control interface, and monitors the virtual bridge processing unit.

5. (Currently Amended) A system for accessing and transmitting different data frames in a digital transmission network according to claim 1, wherein the virtual bridge processing unit processes the data frames according to embedded logic and controls formats of forwarding items in the forwarding database, formats of multicasting items in the multicasting database, and formats of items in the virtual bridge database.

6. (Currently Amended) A method of accessing and transmitting different data frames in a digital transmission network through a system including a virtual bridge device, wherein the virtual bridge device comprises:

an inter-device interface configured to input and output the data frames;

a virtual bridge processing unit, coupled with the inter-device interface for processing of the data frames;

a [[data]] database, coupled with the virtual bridges processing unit ~~for data processing~~ and configured to stores information indicative of data types to ~~faecilitates~~ facilitate the [[data]] processing of the data frames of the virtual bridge processing unit according to the data types; and

a control interface unit coupled with the database, the database being controlled via the control interface unit ~~to control the database,~~

wherein the method comprises the following steps:

determining whether the data frames entering the virtual bridge device via the inter-device interface are control messages;

if they are control messages, transmitting the data frames to an external control system via the control interface unit and ending the process;

if they are not control messages, extracting an input data type number ~~[[and]], a destination address and a virtual Local Area Network (VLAN) number information~~ from the data frames;

searching in the database according to the input data type number and determining whether the retrieval result from the searching is blank;

if the retrieval result is blank, discarding the data frames and ending the process;

if the retrieval result is not blank, extracting a virtual bridge number and a port number from the retrieval result;

determining the processing flow according to the destination address ~~information~~;

if the destination address is a multicasting address, performing a multicasting sub-flow, and then ending the process;

if the destination address is a broadcasting address, performing a broadcasting sub-flow, and then ending the process;

otherwise, searching in the database according to the virtual bridge number, the port number, the destination address and the VLAN number ~~a rule constructed based on information indicative of the data frames~~;

if the retrieval result is blank, performing the broadcasting sub-flow or discarding the data frames and ending the process;

if the retrieval result is not blank, extracting an output port number from the retrieval result, modifying the data frame so as to replace the input data type number in the data frames with the output data type number, modifying the data frames, and sending the modified data frames via the inter-device interface, and then ending the process.

7. (Currently Amended) A method according to claim 6, wherein the step of extracting the input data type number ~~[[and]], the destination address information and the VLAN number~~ from

the data frames also comprises a step of extracting source address of input data and ~~virtual Local Area Network (VLAN) number.~~

8. (Previously Presented) A method according to claim 6, wherein the step of searching in the database according to the type information and determining whether the retrieval result is blank further comprises:

Searching in the virtual bridge database with the index of extracted data type number information;

If the retrieval result is not blank, learning the source address and updating the forwarding database according to the learning result.

9. (Currently Amended) A method according to claim 8, wherein the step of searching in the database according to the virtual bridge number, the port number, the destination address and the VLAN number ~~the second rule constituted by the obtained input data information~~ comprises: searching in ~~[[the]]~~ a forwarding database ~~with the index of~~ according to the virtual bridge number, the port number, the destination address, ~~Virtual Local Area Network (VLAN)~~ the VLAN number as indexes; ~~the second rule is whether the virtual bridge number, port number, destination address, VLAN number are found.~~

10. (Currently Amended) A method according to claim 9, wherein the step of modifying the data frames so as to replace the type number in the data frames with the output data type number and outputting the data frames via the inter-device interface comprises:  
~~extracting output port number information from the retrieval result;~~

searching in the virtual bridge database ~~with the index of~~ according to the virtual bridge number and the output port number;

determining the retrieval result,

if the retrieval result is blank, discarding the data frames and ending the process;

if the retrieval result is not blank, extracting output type number information from the retrieval result and modifying the data frames so as to replace ~~[[a]]~~ the type number in the data frames with the output data type number~~[[:]]~~

~~outputting the modified data frames via the inter-device interface.~~

11. (Previously Presented) A method according to claim 6, wherein the broadcasting sub-flow comprises:

searching in the virtual bridge database for a first item, as a retrieval result, corresponding to a virtual bridge having an index corresponding to the virtual bridge number;

determining based on the retrieval result,

if the retrieval result is blank, discarding the data frames and ending the sub-flow;

if the retrieval result is not blank, comparing the input data type number in the retrieval result with the type number in the data frames;

if the input data type number in the retrieval result and the type number in the data frames are equal, searching in the virtual bridge database for a second item, as a retrieval result, corresponding to the virtual bridge with the index of the virtual bridge number, and then returning to determining based on the retrieval result;

if they are not equal, copying the data frames, extracting output data type number from the retrieval result and modifying the copied data frames so as to replace the type number in the

copied data frames with the output data type number, and then outputting the modified copied data frames via the inter-device interface.

12. (Previously Presented) A method according to claim 6, wherein the multicasting sub-flow comprises:

based on the index of the virtual bridge number, input port, destination address, and Virtual Local Area Network (VLAN) number, searching in the multicasting database for a first item, as a retrieval result, corresponding to these key words;

determining based on the retrieval result,

if the retrieval result is blank, discarding the data frames and ending the sub-flow;

if the retrieval result is not blank, comparing the output port number in the retrieval result with the extracted input port number;

if the output port number in the retrieval result and the extracted input port number are equal, searching in the multicasting database for a second item, as a retrieval result, with the index of the virtual bridge number, input port, destination address, and VLAN number, then returning to determine based on the retrieval result;

if they are not equal, searching in the virtual bridge database with the index of the virtual bridge number and output port number;

if the retrieval result is blank, discarding the data frames, and searching in the multicasting database for the next item with the index of the virtual bridge number, input port, destination address, and VLAN number, and returning to determining the retrieval result;

if the retrieval result is not blank, copying the data frames, extracting output type number from the retrieval result, modifying the copied data frames so as to replace a type number in the



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copied data frames with the output data type number, and then outputting the modified copied data frames via the inter-device interface .